

Space News Roundup

EVA now a definite goal for flight five

More than three hours of extravehicular activity were approved last week to take place during the November flight of *Columbia* after two communications satellites have been deployed. The flight is now scheduled for five days duration.

During the space walk, mission specialists Joseph P. Allen and William B. Lenoir will test tools in the payload bay of *Columbia* while cameras relay the action to monitors in the aft flight deck and to Earth.

Allen and Lenoir will don pressure suits — Extravehicular Mobility Units (EMU) — and backpacks with portable life support systems. They will enter the payload bay through an airlock, hook up safety tethers and traverse down opposite sides of the 60-foot-long enclosure.

Clinging to handrails, they will inspect the cargo bay and then move to a stationary tool box and remove a mini work station which will tether them at various worksites.

In view of the payload bay cameras, they will test stationary and portable foot restraints, torque and box wrenches, scissors, cutters and ratchet tools to be used on future flights.

They will also test two winches mounted on the forward and aft bulkheads.



Flight five Mission Specialists Joe Allen and Bill Lenoir are shown here in Bldg. 29 during a recent simulation of their EVA activities. Top left, Allen and Lenoir get a feel for one of the tools they will

use. Bottom left, Lenoir is lowered into the tank for a practice run. At right, Allen indicates he's ready to go outdoors and snap a few pictures.

SSI launch will have the NASA touch

If the upcoming launch of a solid rocket on a suborbital flight from Matagorda Island Sept. 8 by Space Services, Inc. of America (SSI) seems to have all the hallmarks of a NASA mission, it's for good reason.

Many of those involved with the coming flight have past direct or indirect connections with the space agency, and NASA itself is supportive of the philosophy behind the venture. Space Services is embarking on.

Launch director for the flight will be former astronaut and Space Shuttle Orbital Flight Test Manager Donald K. "Deke" Slayton,

who, characteristically, has been holding NASA-esque flight readiness reviews for the past several weeks.

"This is strictly a suborbital launch," Slayton said, "and we're primarily trying to show we can get the goldarned thing pulled together." Slayton added that he has "one hundred percent confidence" in the vehicle and the launch team.

Also participating in the venture is former JSC Director of Engineering and Development Maxime A. Faget, who has been doing engineering consulting work for Space Services. Lee R. Scherer, former Director of the

Kennedy Space Center, is also on Space Services' Board of Directors. Even Space Services' press relations man, Walter A. Pennino, used to work for NASA in the Public Affairs Office at Headquarters during the Apollo years.

"We will have a four-hour countdown monitored by computers and flight controllers," Pennino said. "There will be no guesswork. Amateur hour was last year." Pennino was referring to the explosion of a liquid-fueled Percheron rocket on the Matagorda launch site last year during a scheduled flight readiness firing.

Plans call for a launch of the 38-foot Conestoga I rocket no earlier

than Sept. 8 on a ten-and-a-half minute suborbital flight to an altitude of 167 nautical miles, exceeding the minimum boundary of space. The vehicle will be propelled along a southeasterly path on an azimuth of 137 degrees.

The Conestoga I booster is an M56A1 solid rocket motor purchased from NASA earlier this month, and is of the type which has been used as a Minuteman second stage. On this flight, it will loft a 1,097-pound mock payload, which will separate and spin up before apogee, continue 279 nautical miles down range and land in international waters in the Gulf of Mexico.

The payload, containing 600 pounds of water for ballast, will dump that water just before apogee, which should result in an enormous water-ice cloud possibly visible from the launch site.

One or two days before launch, SSI will send up several small rockets to check telemetry along the flight path and wind and weather conditions aloft. Tracking and data acquisition will be handled by Deutsche Forschungs- und Versuchsanstalt- und Raumfahrt, DFVLR, a German firm which has provided similar services for launch programs with the same kind of equipment. Slayton's

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'The Teacher' departs

Kraft's NASA career comes to a close after 37 years



Kraft on assuming Director's post in 1972

About 45 minutes after *Columbia's* wheels stopped rolling following the landing of STS-1, Dr. Christopher Columbus Kraft Jr. turned from his seat at the Flight Operations console and held a piece of paper up to the glass in the viewing room overlooking Mission Control.

On the other side of the glass were former high officials of the nation's space program, among them Robert Gilruth, Maxime Faget and Robert F. Thompson. The message Kraft had written on the piece of paper said, "We just became infinitely smarter."

If any person was in a position to judge just how much smarter NASA became that day, it was the man some members of the Senior Staff call "The Teacher."

"What other living man has the complete span of the manned space program at close hand,

within his memory, like Chris Kraft?" one official mused. "He's an institution, he invented it."

The inventor, the exacting manager, the competent technologist, the subtle leader who could turn Not So Subtle if ever you tried to smoke him: all are qualities people point to when asked to appraise him. And similarly, the Johnson Space Center can in some intangible yet very important way be described as the place it is, the way it is, because Chris Kraft worked here.

Last week, Kraft said it was a reasonable time to depart. He met with the media on Wednesday, and by the weekend the torch had been passed to the new JSC Director, Gerald D. Griffin, who assumed the post the following Monday. Kraft specifically requested that no retirement party be held for him.

Different people around the site remember different things about Kraft. Neil Hutchinson, the Flight Director during the launch of STS-1, remembers how tense those first few minutes were. "Everybody was holding their breath," he said. "You are really at the mercy of those machines for the first few minutes of flight. Max Faget was sitting next to Chris at the FOD console. When the SRBs staged, Max was so excited at the sight of it I guess that he just jumped up and hollered. It scared me so much I jumped up too. Chris turned to Max and made a motion which basically meant 'For Chrissake Max, sit down.' Chris being there and being as calm as he was made me think it was really going to fly."

Robert Crippen, Pilot of *Columbia* during that first ascent,

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Space News Briefs

NASA to go after sunken SRB parts

NASA officials have decided to attempt a salvage of at least some components of the two solid rocket boosters which sank in the Atlantic Ocean during the launch of STS-4. None of the hardware to be recovered is expected to be usable, but officials with the investigative board trying to determine the cause of the failed recovery hope to get valuable information from flight data recorders and parachute mechanisms among the sunken components. Underwater cameras have mapped the area and shown that the SRBs were broken into a "large number of parts," according to an announcement released last week by the board. The forward skirt stiffener ring of one SRB, with at least two parachutes attached, is one of the items targeted for recovery. The other booster has the forward skirt and the top solid rocket booster segment intact, and it is this section which contains the flight recorder and other equipment of interest to the board. The recovery is not expected to be easy. The largest piece of debris has no built-in lifting points and probably has a large amount of sea water trapped inside. Detailed procedures for the recovery operation are still being worked out. Both SRB recovery ships, the UTC *Freedom* and *Liberty*, are expected to be used in the operation.

Latex Reactor data recovered

Despite an equipment problem on the Monodisperse Latex Reactor on STS-4, scientists have been able to recover data and complete some of the experiment objectives planned for the mission. The experiment on flight four was the second step in the development of large monodisperse (identical size) latex particles which could have industrial and medical applications. On the STS-4 flight, four batches of latex "seed" particles were expected to grow in a range of sizes up to 10 microns. Although early indications were that this did not happen as planned, scientists at the Marshall Space Flight Center have found that sufficient heating did occur in the experiment reactors and the chemical process was found to be at least 55 percent complete. This means the chemical reactions required passed the critical stage in order for the particles to form properly, and scientists at Lehigh University were able to finish the latex forming process on the ground. Principal Investigator Dr. John W. Vanderhoff estimated the final particle sizes to be about 7.9, 9.4, 10.3 and 10.8 microns. Next flight of the MLR experiment is planned for STS-5 in November.

Both OPF bays busy at Kennedy

Both bays in the Orbiter Processing Facility at the Kennedy Space Center are humming these days at both *Columbia* and *Challenger* under-go preparations for STS-5 and STS-6, respectively. *Columbia* is in the midst of modification procedures to prepare her for the first operational mission. The ejection seats have been deserviced and seats installed for the two mission specialists who will be aboard. Preparations were also being made in *Columbia's* cargo bay to handle the placement of the two communications satellites which will constitute her major STS-5 payload. At press time, about 160 tile cavities remained on the vehicle, and repair work had begun on the dimples caused by a hail storm the evening before launch of STS-4. *Challenger*, meanwhile, is undergoing an exhaustive dynamic stability test this week, one of the major milestones in certifying her for flight. One goal of the test is to check the aerodynamic surfaces on the Orbiter. The last heavyweight external tank has arrived at KSC and will be used for STS-7. Newer lightweight tanks will begin service on STS-6 and continue with the flight of STS-8 and beyond. The STS-6 tank will arrive next month.

Shuttle processing contract to be let

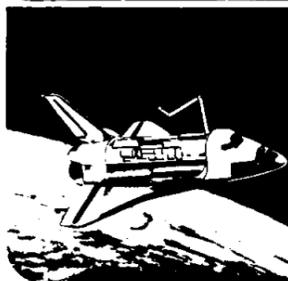
NASA expects to release a formal request for proposals on a single Space Shuttle ground processing contract by November, with contract award targeted by 1983, NASA Administrator James Beggs said last week. According to Beggs, the contract should result in significant cost savings during the operational era as a single contractor assumes responsibility for launch preparations, landing and turnaround activities. Previous Shuttle processing, as well as the processing of earlier space vehicles, has been handled by several contractors who supplied flight hardware. The move is designed to minimize interfaces between the responsible parties and allow NASA to commit more personnel to continued research and development.

NASA aids Tunisian solar power program

The small village of Hammam Biadha, a settlement about 90 miles southwest of the Tunisian capital of Tunis in Northeast Africa, will soon boast one of the world's largest village stand-alone solar power systems. NASA's Lewis Research Center is managing the project, which is being funded by the U.S. Agency for International Development and the government of Tunisia. Hammam Biadha will be provided with solar electricity for indoor and outdoor lighting, refrigeration, radio, TV and water pumping for the village. Two smaller remote installations will provide power for agricultural applications on nearby farms and orchards. The systems will, in total, be capable of supplying 25 to 30 peak kilowatts of usable electricity and are scheduled to be in place by October. Two small wind turbines will also be installed to help pump water for greenhouses in this project, which is designed to show the utility of alternative power systems in remote areas of the world. As Tunisia's known reserves of crude oil are expected to no longer meet the needs of the country by 1990, the demonstration project is seen as crucial to showing the feasibility of alternative energy systems.

NASA
Lyndon B. Johnson Space Center

Space News Roundup



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Editor

Brian Welch

Four named as Outstanding Secretaries at Center

Four women have been honored in recent months as Outstanding Secretaries at JSC. The awards were presented by the Director along with cash awards of \$150 for superior performance.

The March Outstanding Secretary, Marie E. Tucker, works in the Office of the Director and has supported Special Assistant for Management William Kelly, Labor



Marie E. Tucker

Relations Officer Bailey Chaney and Technical Planning Office Chief Joseph Loftus.

She is also the official back-up support for the Executive Correspondence Control Officer, and has served in the Mission Evalua-



Kathryn A. Parker

tion Room during Shuttle flights.

"Mrs. Tucker is an outstanding secretary who has impressive technical skills, broad knowledge of the organizations and the tasks to be accomplished, and applies these capabilities to each day's tasks with dedication and good humor," Chaney wrote in the recommendation for recognition.

"Recognition as one of the truly outstanding secretaries at JSC honors her formally as those who know her already do, informally," he said.

April's Outstanding Secretary, Kathryn A. Parker, serves as secretary to the Deputy Chief, Shuttle Avionics Integration Division. Her position requires that all correspondence and administrative work be handled quickly and efficiently to help support the Shuttle program.

In the award citation, her supervisor Irvin J. Burtzloff wrote, "Mrs. Parker has consistently performed all duties in an outstanding manner." He noted that in addition to working as his secretary, she also assumed the additional duties as the Shuttle Avionics Integration Laboratory project secretary. In that position she has been responsible for all typing support in the publication of Test Operations Notices, documents issued for each test in SAIL. "Since SAIL is a three shift per day, six to seven-day per week operation," Burtzloff noted, "Mrs. Parker has prepared volumes of TONs in an excellent manner."

May's Outstanding Secretary is Lois D. Walker of the Orbiter Project Control Division, Administration and Program Support Directorate. Her performance, wrote Orbiter Project Control Manager Daniel A. Nebrig, "is superior in every respect." Besides the normal secretarial duties, she serves as the training coordinator, property custodian, and on-the-job instructor of secretarial skills.

"She is well founded in the procedures and requirements of the office," Nebrig wrote. "Her personality is such that, coupled with this foundation, she is an excellent instructor. The quality and uniformity of skills, the harmony and spirit of cooperation within the office attest to her skills as both a teacher and a leader. Her polished skills, pleasant attitude, willingness, intelligence and initiative make her an outstanding example among executive secretarial professionals."

The June Outstanding Secretary, Marian A. Worley, works in the Mission Planning and Analysis Division, Data Systems and Analysis Directorate. As secretary to the Division Chief, she is responsible for providing a wide

range of quality support at the division level. MPAD Chief Ronald L. Berry said she has "displayed outstanding initiative, creativity, attitude, cooperation, motivation, versatility and dependability while maintaining a very high level of clerical work quality." He said she has helped keep the division functioning smoothly even in the face of continual clerical staffing va-



Lois D. Walker

cancies. "She has performed administrative coordination and integration tasks across the division which would normally have been done by someone of the Chief's staff, thus saving higher grade personnel countless hours of admin-



Marian A. Worley

istrative work," he said.

In addition, he noted, she has for several years been in charge of planning, directing and supervising the JSC/Employees Activities Association children's programs, spending "countless voluntary hours" bringing "joy and pleasure to the children of the JSC community."

People

One of the most extensive and complex audits ever undertaken by NASA's Office of the Inspector General — an audit of the Space Shuttle Orbiter Project — has resulted in a group achievement award which includes three members of the JSC IG Office. **Clarence M. Crawford, Ned Echerd and Cecilia de la Garza** were three of the five persons named to share in the group award of \$2,500. Crawford was the principal auditor for project management, while Echerd was the principal auditor for logistics. Mrs. de la Garza was secretary for the audit. The audit of the Orbiter Project is expected to result in significant cost savings in the future.

Nita Lusk, a secretary with Rothe Development on-site, won a trip to Winterpark, Col. recently along with fifty other couples for a private concert with Hank Williams Jr. The contest was sponsored by a local radio station. Lusk's name was read over the air and by calling in at the designated time, she also won an 11-album catalog of Williams' greatest hits. Fortunately, Lusk is a country and western fan, and can't wait to make the trip in mid-September.

Scott Roberts, employed as a summer clerk in the Structures Division, was the recipient of the "Brian Piccolo Award" by the Bay Area chapter of UNICO, an Italian-American service organization. The award is presented to those UNICO finds indicative of the



attributes exhibited by the late Chicago Bears running back whose life story was documented in the movie "Brian's Song." The award is meant to show that with pride and determination, any obstacle can be overcome. Roberts, who is deaf, has not been slowed down a bit. He played football on the Dobie High School team and also works at Chili's in addition to his NASA job. He plans to attend Southwest Collegiate Institute for the Deaf in Big Spring for two years and then transfer to the University of Houston to complete his degree in geology.

A Republic of the Philippines national has just completed a two-month United Nations fellowship program with JSC's Office of the Inspector General. **Elisa C. Gervasio** will return to the

Philippines to work with her government in the supervision and auditing of national development projects. As part of her training and the UN program, she spent two months assisting with audits at JSC, working with **Ned Echerd** of the IG Office.

Frank J. Kucera has been installed as the new General Manager of the JSC Federal Credit Union. Kucera began his credit union management career with the Ethyl Employees Credit Union in Pasadena in 1955. In his 27-year career he has held similar posts in credit unions in Texas, Florida, New York and Georgia. Immediately prior to assuming the new position, he was Chief Executive Officer and General Manager of the Federal Employees Credit Union in Atlanta.

NASA selects contractors for space station studies

NASA has selected eight companies for final negotiations leading to firm fixed-price contracts of less than \$1 million apiece for space station mission studies. The studies will contribute to the development of specific mission requirements and overall architectural options which will be incorporated in NASA studies of a Shuttle-tended, permanent orbiting facility.

The eight companies selected are: Boeing Aerospace Co., Seattle; General Dynamics, Convair

Div., San Diego; Grumman Aerospace Corp., Bethpage, N.Y.; Lockheed Missiles and Space Co., Inc., Sunnyvale, Calif.; Martin Marietta Aerospace, Denver Aerospace, Denver; McDonnell Douglas Astronautics Co., Huntington Beach, Calif.; Rockwell International, Space Operations/Integration and Satellite Systems Div., Downey, Calif.; and TRW, Inc., Defense and Space Systems Group, Redondo Beach, Calif.

These studies are part of a space station planning activity un-

derway at NASA for consideration by the Administration and Congress as the next major initiative in space.

The studies conducted under these contracts will be eight months in length and are expected to identify and analyze the scientific, commercial, national security and space operational missions that could be most efficiently conducted by a space station. From this analysis, the contractors will develop alternative concepts for a station.

'The Teacher' departs

(Continued from page 1) remembers Kraft as being "at his best in a crisis." Crippen said, "He would have a problem which looked overwhelming and he would cut through it all and find the answer. He never hesitated about making decisions, he is an excellent engineer and he would always ask the right questions."

"He knew every piece of that vehicle as well as anyone on this center. He really knows what it means to go out and operate something. It was obvious he knew these systems. He understands operations. He understood our problems too, and he could relate to them."

Kraft the manager believed strongly in finding the right people for the job and then giving them full responsibility. Director of Engineering and Development Aaron Cohen, who headed the Orbiter Project Office during Kraft's years as Director, remembers having that authority and that full support. "When Chris gave me the job, I was in charge of it. Never once did he take authority away from me. He was there as guidance. He had the capacity to hear a very complicated problem and sort out what was important and not important, and then guide you to a decision. He would take you to the path."

Glynn Lunney, Space Shuttle Program Office Manager, said Kraft's leadership style "was a form of genius." Kraft, he said, was the kind of leader who instinctively led. "He was surer somehow," Lunney said. "You didn't have to make 88 view graphs for him before he would make a decision. We were fortunate and so was the country to have that kind of genius available."

In the mind of Acting Associate Director Henry E. Clements, Kraft stood out as "the model of the competent civil servant in this



government. His is an extraordinary technical mind. He raised leadership to an art form."

Flight Simulation Division Chief Robert E. Ernull is one of those many people around JSC who was personally hired by Kraft. "I've known Chris since 1959 when I graduated from college and went to work in the Space Task Group on Project Mercury. I think the guy walks on water," Ernull said. "I've seen many instances where people literally had to be forced to go home and rest after working to the point of utter exhaustion. This is the kind of performance and

dedication that Chris inspires in his people."

One way Kraft inspired that dedication, people say, was through his ability to be both very tough and very fair. "If all the facts were honestly displayed and a decision was made," Cohen remembers, "he was in it with you."

"I learned very early on that you don't ever, ever try and smoke that man," Hutchinson said. "You could rest assured that he would probe something far enough to get all the answers. When people come to talk with him, they come prepared. Not only would you not want to try and smoke him, you would know that you wouldn't get away with it."

"If you weren't entirely up front with him," Crippen said, "then you could stand by to have it happen to you, because it would."

Beyond inspiring loyalty and dedication, Kraft's management style, his management presence, was of great value to the people working to get the Space Shuttle off the ground during the difficult 1970s. "Chris had a phrase," Hutchinson said, "which was, 'Have at it.' Once you got that approval, you could rest assured you could go do your job and he would make sure you were not interfered with. He would make it stick."

At a press conference last week, Kraft said he was going to take a long vacation and then go find some more challenges. He will begin by doing consulting work here and there, and hopes to stay closely involved with the space program.

"He is leaving a good legacy," Cohen said. "Now we will have to go out and continue that excellence."



This scanning electron microscope photograph of volcanic ash particles retrieved from the stratosphere by a JSC WB-57F research aircraft clearly shows the surviving traces of a gas bubble which formed within the particle at top center during the eruption of the El Chichon volcano. Particles collected by JSC's Planetary and Earth Sciences Division are composed mostly of silica, aluminum, some magnesium and other trace elements. JSC studies have found that the dust particles, now circling the Earth in a massive cloud as thick as six miles, have in some cases clumped together due to electrostatic attraction, and this clumping effect may account for their relative longevity in the atmosphere. The JSC findings will be presented at the conference on the climatic effects of such volcanic injections at the Ames Research Center later this month.

Bulletin Board

More LPI seminars scheduled

Lunar and Planetary Institute seminars scheduled for the rest of August and the first part of September include a look at organic matter in the solar system and a discussion on ocean floor geophysics. The seminars are each held at 3:30 p.m. in the Berkner Room at the Institute. On Tuesday, Aug. 17, Pete Hall from Escuela Politecnica Quito in Ecuador, will offer a "Re-Interpretation of the Age and Origin of Espanola Island, Galapagos." On Friday, Aug. 20, Stuart Hall of the University of Houston will discuss "Ocean Floor Geophysics of the Caribbean." On Friday, Aug. 27, Rama Kotra of JSC will discuss "Organic Matter in the Solar System." On Friday, Sept. 10, Steven Croft of LPI will discuss "Ice Creep Relations and Geophysical Processes on Icy Satellites." For more details, call 486-2147.

Gen. Hartinger to speak at AIAA dinner

Gen. James V. Hartinger, Commander-in-Chief of the North American Aerospace Defense Command and soon to be commander of the U.S. Air Force's Space Command, will address a dinner meeting of the Houston Section of the American Institute of Aeronautics and Astronautics Sept. 9. Hartinger will assume the lead role in the new Space Command when it is formed effective Sept. 1. The dinner meeting begins with a social hour at 6 p.m. Sept. 9 in the Gilruth Recreation Center at JSC. A Texas barbecue dinner follows at 7 p.m. and the program at 8 p.m. Ticket prices for members and spouses is \$7, \$8 for non-members and \$6 for students. There is no charge for attending the program only. Reservations must be made by Sept. 7 by calling Dianne at 333-4150, Joanne at 333-2030, Patty at 488-5660, Nancy at x3995 or Sylvia at 845-7541. Dinner cancellations are required.

Alley Theatre subscriptions available

Orders may still be placed for the Nina Vance Alley Theatre corporate subscription drive now underway until Sept. 22. Season tickets are available for the coming year's series of six performances for a total of \$36. Brochure order forms are available in the Bldg. 11 Exchange Store and through your Employees Activities Association representative. Checks should be made payable to the Alley Theatre and will be cashed when the subscription program ends in late September. The Season opens in October. Orders should be sent to Doris Wood, SN1, x4464.

Lunarfins to offer SCUBA course

The JSC SCUBA diving club, the Lunarfins, will offer a six-week basic SCUBA course beginning Sept. 28. The course will include classroom lectures at the Gilruth Recreation Center and supervised practical experience in the use of SCUBA in the pool at La Porte High School. Students who successfully complete the course will be certified by NAUI. Enrollment is limited. The club also schedules regular boat trips to coral reefs, sunken wrecks and platforms in the Gulf, plus diving vacations in the Caribbean. Interested persons are urged to attend one of the monthly meetings to learn more about the club. For more information on the class, call the Rec Center at x3594.

Fire alarm procedures given

Officials in the Operations Safety Branch say recent fire alarms have shown that some employees are not entirely sure of what to do when a fire alarm bell sounds. The proper procedure, they say, is to find the nearest exit and evacuate the building to a distance of at least 75 feet. Elevators should most definitely not be used, nor should employees stop at vending machines or in the lobby as this causes bottlenecks and slows the evacuation. There is always the chance that the alarms are not drills, and persons should not re-enter the building until told to do so by Fire Department personnel. The Safety Operations Branch also suggests that if you feel you may need assistance evacuating, contact your supervisor, the building fire warden or the Safety Branch at Mail Code NS3, x2719, so that a "buddy" can be assigned and so that the Fire Department will know your location.

Exchange store offerings listed

Along with the regular complement of tickets and coupons, the Bldg. 11 Exchange Store is offering Houston Grand Opera corporate discount subscriptions. Special order forms good for 20% off the regular subscription price or 50% off for senior citizens and students may be obtained in Bldg. 11. During the coming season, five operas will be presented in English for the light opera series. They are: "Magic Flute," "Carmen," "Die Fledermaus," "Hansel & Gretel" and "Student Prince." The Grand Opera Series, in Italian, will present six operas: "Il Trovatore," "Magic Flute," "Carmen," "Adriana Lecouvreur," "Masked Ball" and "Willie Stark." Performance dates and other details are listed on the subscription forms. In addition, the Bldg. 11 Exchange Store is offering Baybrook Mall General Cinema tickets for \$2.50 each, Clear Lake Plitt Theatre tickets for \$2.30 each, Astroworld/Six Flags tickets for \$10 each, Astroworld season passes for \$34.95 each and postage stamp books for \$4 each.

Pedestrian safety stressed

Management Services and the JSC Safety Office are growing somewhat concerned over the safety of pedestrians on-site, especially with the heavy influx of visitors during missions and the summer months. Drivers should know that in all cases, pedestrians have the right of way in the crosswalk. There are no exception. Second Street is a specific concern, according to Management Services Division Deputy Chief William A. Larsen, because of heavy daily traffic and numerous crosswalks. Drivers should be ready to stop for pedestrians at all times, he notes. "To avoid a tragedy, please be careful, courteous and considerate of other," he said.

SSI launch

(Continued from page 1) launch team consists of 18 people, with DFVLR providing an additional 13 persons.

Slayton listed the mission objectives as:

- a demonstration of SSI's ability to organize, fund and develop a launch vehicle and a launch site;

- creation of the first cooperative private space venture along with a pathfinding effort to gain appropriate approvals from the proper Federal agencies, among them NASA, the Federal Aviation

Administration, the Federal Communications Commission and the State Department;

- obtaining operational experience for the launch team and the management and industrial teams.

The engineering tests conducted during the flight are expected to give SSI a qualified launch site at Matagorda, a demonstration of the vehicle's ability to send payloads into orbit, and a comparison of actual results with those specified in the Conestoga designs.

Gilruth Center News

Call x3594 for more information

August fun run — This 10 km, 2 mile race gets underway at 8 a.m. Aug. 28 at the Gilruth Center. The cost for entry is \$2. Refreshments will be served.

Softball tourney — The next softball tourney, the sixth annual JSC mixed invitational, will be held Aug. 20, 21 and 22 at the Gilruth Center. The entry fee is \$65 per team and space is limited. For more information, call the Rec Center at x3594.

Overnight trip — This trip to Evangeline Downs includes bus, hotel, breakfast and two tickets to the clubhouse. Trip dates are Aug. 14 and 15 and the cost is \$65 per person. Call x3594 for more details.

Defensive driving — Learn to drive safely and qualify for a 10% reduction in you insurance for the next three years. Class is held from 8 a.m. to 5 p.m. Aug. 21 at a cost of \$18 per person.

Dinner dance — An end of summer Dinner Dance will be held beginning at 7 p.m. Aug. 21 at the Rec Center. The cost of the social hour, pepper steak dinner and dance will be \$10 per person. The social hour begins at 7 p.m., with dinner at 8 p.m. and dancing from 9 p.m. to 1 a.m. Tickets are on sale until Aug. 17 at the Bldg. 11 Exchange Store. Sales are limited to 200.

Cookin' in the Cafeteria

Week of August 16-20, 1982

Monday: Cream of Celery Soup; Braised Beef Ribs, Chicken a la King, Enchiladas w/Chili, Italian Cutlet (Special); Navy Beans, Brussels Sprouts, Whipped Potatoes. Standard Daily Items: Roast Beef, Baked Ham, Fried Chicken, Fried Fish, Chopped Sirloin. Selection of Salads, Sandwiches and Pies.

Tuesday: Beef & Barley Soup; Turkey & Dressing, Country Style Steak, Beef Ravioli, Stuffed Cabbage (Special); Corn Cobbette, Okra & Tomatoes, French Beans.

Wednesday: Seafood Gumbo; Catfish w/Hush Puppies, Roast Pork w/Dressing, Chinese Pepper Steak (Special); Broccoli, Macaroni & Cheese, Stewed Tomatoes.

Thursday: Cream of Tomato Soup; Beef Tacos, BBQ Ham Slice, Hungarian Goulash, Chicken Fried Steak (Special); Spinach, Pinto Beans, Beets.

Friday: Seafood Gumbo; Liver & Onions, Deviled Crabs, Roast Beef w/Dressing, Tuna & Noodle Casserole (Special); Whipped Potatoes, Peas, Cauliflower.

Week of August 23-27, 1982

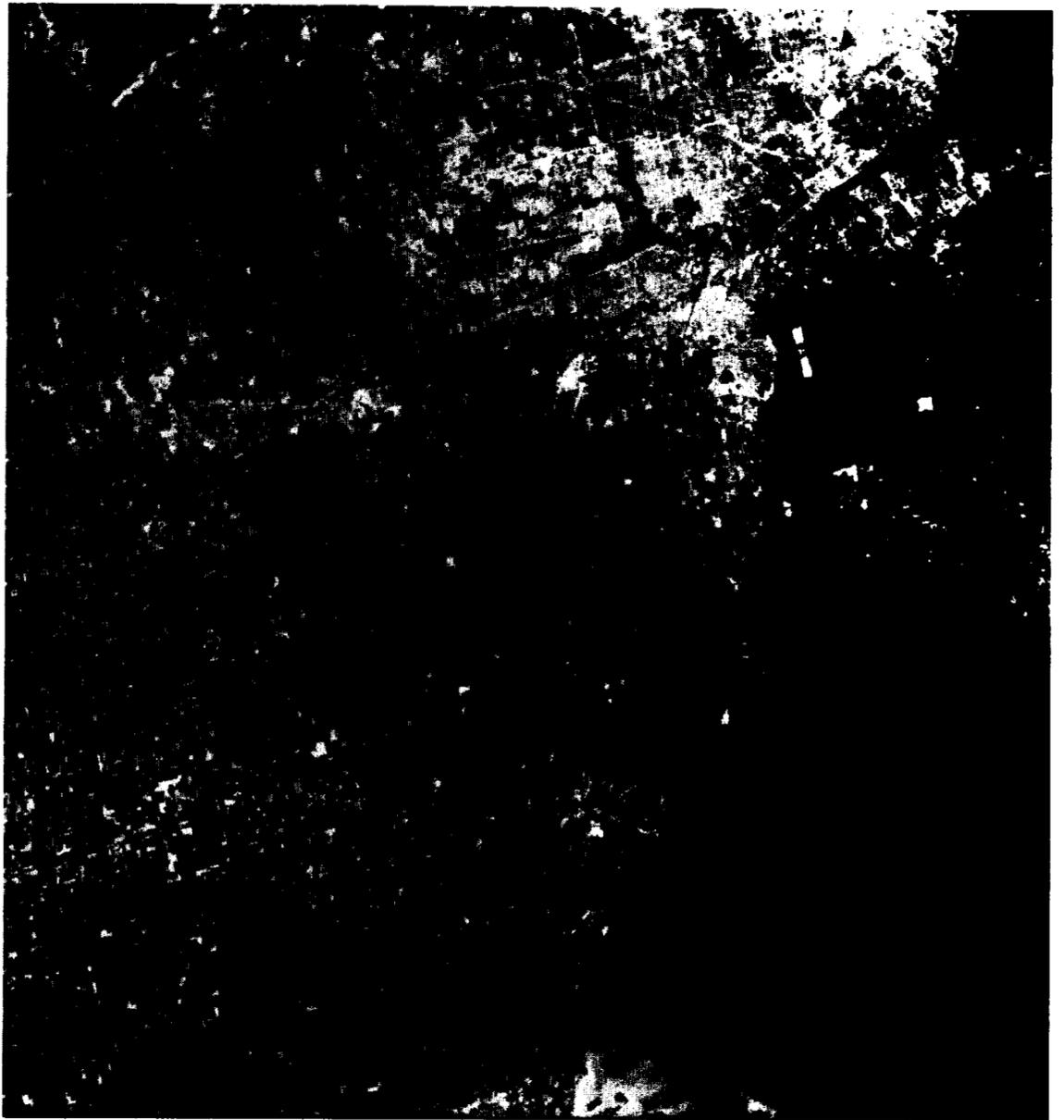
Monday: French Onion Soup; Beef Chop Suey, Polish Sausage w/German Potato Salad, Breaded Veal Cutlet (Special); Okra & Tomatoes, Green Peas. Standard Daily Items: Roast Beef, Baked Ham, Fried Chicken, Fried Fish, Chopped Sirloin. Selection of Salads, Sandwiches and Pies.

Tuesday: Split Pea Soup; Salisbury Steak, Shrimp Creole, Fried Chicken (Special); Mixed Vegetables, Beets, Whipped Potatoes.

Wednesday: Seafood Gumbo; Fried Catfish w/Hush Puppies, Braised Beef Rib, BBQ Plate, Weiners & Beans, Shrimp Salad, Stuffed Bell Pepper (Special); Corn O'Brian, Rice, Italian Green Beans.

Thursday: Chicken Noodle Soup; Beef Stroganoff, Turkey & Dressing, BBQ Smoked Link (Special); Lima Beans, Buttered Squash, Spanish Rice.

Friday: Seafood Gumbo; Broiled Turbot, Liver & Onions, Fried Shrimp, Meat Sauce & Spaghetti (Special); Green Beans, Buttered Broccoli, Whipped Potatoes.



This first image from Landsat-4's thematic mapper was taken July 20, four days after its successful launch, and shows the Detroit area in what scientists described as exciting detail. The image, a composite of three individual images from detectors in the green, red and infrared portions of the spectrum, shows Detroit at upper right, Windsor, Ontario south of that, and the northern part of Toledo, Ohio at bottom center. The image is precise enough to delineate individual streets, and ships can even be seen in the Detroit River. Also visible on the Detroit waterfront is a dark area which is the Renaissance Center/Cobo Hall complex, where President Reagan was nominated in 1980.

Roundup Swap Shop

Ads must be under 20 words total per person, double spaced, and typed or printed. Deadline for submitting or cancelling ads is 5 p.m. the first Wednesday after publication. Send ads to AP3 Roundup, or deliver them to the Newsroom, Building 2 annex. No phone-in ads will be taken. Swap Shop is open to JSC federal and on-site contractor employees for non-commercial personal ads.

Property & Rentals

For rent: Galveston Jamaica Beach, central AC/H, furnished 3 BR, boat mooring, fall fishing on West Bay, \$130/wkend. Call Darrell 337-3970.

For sale or lease: 2 BR condo, W/D, covered parking, ceiling fan, burglar alarm, overlooks pool, tennis courts, \$550/mo. plus deposit. Call Rick, x5341.

For sale: 2-1-1 condo in Dickinson, assume 11%, \$3,000 down and \$245.95 payment, owner carry 2nd, quiet residential area. Call Tam, x4949 or 534-3376.

For sale: 3-2-2 in Seabrook — Miramar, new roof, tile, inside and out paint, VA assumption. Call Bill, x4966 or 488-1410.

For rent: Galveston By-The-Sea condo, 2 BR, furnished apartment for rent by days (two minimum), week or month. Call Clements, 474-2662.

For sale or lease: 4-2 1/2-2 in Brookforest, 16407 Heatherdale, 2,500 sq. ft., very nice and clean. Call Smith, x3701.

For lease: 2-2 Egret Bay condo, water view, W/D, covered parking, avail. Sept. 1, \$550/mo. plus deposit. Call Jim Feibelman, x5871 or 333-5866.

Will lease at advantageous rate to professional couple who will be careful with my home while I'm at school, 3-2-2, two story, Sagemont, good neighborhood. Call Juday, x4505.

For sale: Friendswood, Polly Ranch 3-2-2, shop, deck, large lot, trees. Call owner 482-6794.

For lease: 1 BR condo, W/D, covered parking, ceiling fan, burglar alarm, overlooks pool, 2 balconies, clubhouse, sauna & tennis courts, \$425/mo. plus deposit. Call Mark, x4436 or 554-2538.

For rent: League City 3-1 1/1-2, newly decorated, fenced, no pets, \$525/mo. Call 554-6200.

For sale: Lot at Waterwood, Lake Livingston, near Coldspring. Sized for weekend home, near golf, tennis, stables, etc. Call Bill, x4966 or 488-1410.

Cars & Trucks

1977 Ford P.U. 150 Auto/PS/PB Air, Gem Top, AM radio, original owner, excellent condition \$3,000. 488-6701.

1974 Dodge Maxivan, Milburn custom paint, sink, refrigerator, catalytic wall heater, sleeps two, all

power, AM/FM/cassette, \$3,950. Call Rich, x2631 or 333-9874.

1972 Datsun 240Z, AC, mags, low miles, excellent condition, new clutch and brakes, \$3,200. Call Whitsett, x6193 or 488-1777.

1974 Dodge van, 3/4 ton, long wheelbase, PS, PB, AC, auto 318, great gas mileage, captain's chair, bench seat and mag wheels, \$1,595. Call 482-8457.

1976 Buick Skyhawk, 5 spd., 60K miles, AM/FM, PS, PB, excellent running condition, \$1,550.

1978 Toyota Celica GT liftback, black package, low miles, \$4,500. Call Debbie, x2891 or 332-1258.

1979 Datsun 280ZX GL package, excellent condition, must sell, \$8,500 or best offer. Call 333-4614 or 337-3401 after 5:30 p.m.

1971 Olds Cutlass Supreme, 4 dr hardtop, AC, power windows, good tires, runs well, one owner, excellent work car, best offer. Call Lew, x2541 or 488-1222 after 7 p.m.

1974 Honda Civic, 4 spd., AM/FM, AC, Michelin SB radials, \$1,100. Call 333-3056.

1976 Toyota Celica GT, 5 spd., AM/FM stereo, AC, low miles, best offer over \$2,950, Blue Book \$3,525. Call E. Rubio x6465.

1971 Volvo, 2 dr., auto, AC, radio, 80K miles, needs some work, make offer. Call Phil, x3076 or 488-4453.

1972 Mustang 351 Boss, classy muscle car, rebuilt motor, trans. and brakes, like new interior, mags, stereo, auto, \$2,750. Call Wood, x4464 or 333-2373.

1974 Chevy Luv truck, good condition, \$1,600. Call Kochner, x6364 or 488-2390.

1977 Olds Cutlass salon, auto, AM/FM stereo, PB, PS, tilt wheel, AC, \$3,000. Call 488-1326 after 5 p.m.

1966 Mustang, 6 cyl. manual, original paint, little rust, needs body work, runs well, \$1,100. Call Jackson, 334-5832.

1977 TR-7, green, 4 spd. manual, good condition, motor/transmission/rear end reworked, \$3,600. Call Jackson 334-5832.

1975 Pontiac Grand Le Mans, single owner, \$1,800. Call Larry, x5391 or 480-7917.

Cycles

1980 Honda CM 400T, excellent

condition, new tires, windshield, backrest w/rack, helmet, \$1,200. Call Curley, x3026 or 944-3522 after 5 p.m.

1980 Yamaha IT 175, very low miles, excellent condition, \$900 or best offer. Call Bob, x6226 or 488-3314 after 5 p.m. and weekends.

1976 Gold Wing, fairing extra chrome, excellent condition, \$1,900. Call Bob Snell, x2985.

1976 Honda 750 SS, bought new in '78, 7K miles, excellent condition, new muffler, tires, chain, quartz light, \$1,395. Call 482-8457.

1981 Kawasaki CSR 650, 3,600 miles, excellent condition, \$1,800. Call 331-2320 after 6 p.m.

Boats & Planes

1979 16' ski boat, excellent shape, low hours, 80 hp Mercury outboard, trailer, skis, vests, extras, \$4,300 or best offer. Call E. Rubio, x6465.

Catalina 27' sail boat, 30 hp Atomic four gas engine, wheel, dinette interior, two jibs, etc, \$19,200. Call Bernhard, x4461 or 333-2968.

Audio & Video

Cerwin Vega 211 speakers, concert rated, great base response, \$40/pair. Call Sharon, 488-5083 after 5:30 p.m. Entertainment center, stereo and 2 speakers, all for \$75. Call Swilley, 486-0573.

JVC 6700 UHS video recorder, still under warranty. Call Pat, x4987.

Computers

Microcomputerists — organizing a CP/M users group for Houston. Call Vernon Bailey, x5565 or 337-2855.

Two 5 1/4" double-sided double density disk drives w/power supply/case. Suitable for TRS-80, etc., \$495. Call Tom Harmon, x3511.

Wanted

Roommates for fall 1982, Texas A&M, to share large 2 BR townhome near campus, on shuttle bus route, W/D available. Call Jenny, 482-7869.

Female to share CLC apartment near JSC, \$162.50 plus utilities. Call Lisa, x4231 or 486-3923.

Roommate to share 3 BR home in Middlebrook. Call Wayne, x6226 or 486-7141.

Female non-smoker to share 1 BR of new 2-2 condo, fall at UT Austin, near shuttle bus route. Call 488-2605.

Female roommate to share 3-2-2 house, Scarsdale Blvd. area, immediate occupancy. Call Betty, x4009.

Want men's 3, 5 or 10-speed bike. Call Larry, x5391 or 480-7917.

Want inexpensive starter set, right hand golf clubs. Call Dave, 480-1447 after 5 p.m.

Ride needed or will share from Piper's Meadow to first traffic light on I-45 in Galveston, 8 a.m. to 5 p.m. shift. Call Tom, x4258.

Ride needed from Westbury in Chimney Rock/Gazmer area, hours flexible. Call Elizabeth Wilson, x4831.

The Sagemont Eagle car pool is looking for 1 person to join 4-person carpool, leaves at 7:35 a.m. from Sagemont and arrives back around 5:30 p.m. Loads of fun. Call L. Parker, x4241.

Household

Five drawer kneehole desk; brass fireplace screen. Call 333-4528.

Nylon velvet contemporary sofa, beige w/matching pillows, \$100. Call 488-5083 after 5:30 p.m.

Round contemporary swivel chair, oyster color, \$30. Call Sharon, 488-5083 after 5:30 p.m.

Free standing three-tier lamp, black and chrome, white globes, \$45. Call Sharon, 488-5083 after 5:30 p.m.

Light green drapes w/sheers, at 6' X 7', drapery rods and valance for 6' window, best offer. Call 487-3223.

Pets

Dachshund needs home, neutered male, loveable, eager to please, inside or out, food bowls and supplies included. Call 488-1777.

Wirehair Fox Terrier male pup, healthy, adorable, AKC champion bloodline, ready after July 26, \$250. Call 337-3961.

Part Abyssinian female kitten, 2 1/2 mo. old, housetrained and loves to play, all toys go w/her. Call 996-9070 evenings.

AKC miniature Schnauzers, 10 wks. old, wormed, \$150. Call Dorothy, x2981 or 482-6660.

Musical Instruments

Five-piece Rogers drum set w/Zildian crash cymbal, \$400. Call 488-0754.

Yamaha trumpet, good condition, ready to play, will make good school instrument, \$100. Call 488-4069.

Organ, "The Entertainer," 11 rhythms, one octave of bass pedals, auto chord system, reverb, vibrato, plus accessories, \$650. Call 333-3056.

Interested in joining the Clear Lake Symphony at UH/CLC? Auditions will be held Aug. 31 at 7 p.m. in the Bayou Bldg. auditorium at UH/CLC. Call W.F. Meek, x4851 or 488-9390 for more information.

Miscellaneous

Wisconsin engine, 8 hp, horizontal shaft, 4-stroke, runs well, \$65. Call Andrei William, 334-2180.

Marina Village camping club membership at Westwood Shores on Lake Livingston, \$4,200 value for \$2,950; sale or trade for equal value. Call 332-5721 after 5 p.m.

1964 Ford 2000 tractor, \$2,800; 16' flatbed trailer w/tandem axles and ramps, \$550; 8' mower, \$450; or buy all for \$3,650. Call E. Bullock, 482-6401

Custom go-cart, leafspring suspension, 3 spd. trans., 12 hp engine, all steel construction. Call Nick, x2631.

Portable sewing machine, \$25; 2 boat seats, \$12 ea.; boat anchor, \$8; mahogany game table, \$40. Call 488-3746.

Girl's clothes, sizes 2 to 5. Call Dianne, x5549 or 479-0926.

Four 15" wire wheels and Sears Roadhandler tires, HR-78-15, best offer. Call 946-0111 after 5 p.m.

Free firewood, two large trunk sections from ash tree, approx. 22' dia. by 27' length, you split and haul. Call 488-4069.

Magic Chef microwave oven, touch control panel electronics has problem, \$50. Call Gene, x5501 or 482-3969.

Lawn edger, good condition, \$75; built-in dishwasher, still working, \$40; two rusted 3 spd. bikes, \$10 each. Call Lee, x3459 or 488-1146.

Concrete border blocks, scalloped, 2' long, 75 cents each. Call McNeely, 482-1549.

Kirby vacuum w/attachments, approx. 2 yrs. old, \$275. Call Tom, x4528.

McCulloch 14" chain saw, w/case, gas fueled, used very little, \$110. Call 485-6423.

Wards vibrating belt exercizer/massager, firms, tones, relaxes, \$30. Call Sharon, 488-5083 after 5:30 p.m.